



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,671	10/16/2003	Monica M. Marugan	GEPL.P-077	2670
43247 7590 09/14/2007 Marina Larson & Associates LLC re: lexan PO BOX 4928 DILLON, CO 80435			EXAMINER ZIMMER, MARC S	
			ART UNIT 1712	PAPER NUMBER
			MAIL DATE 09/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/605,671	<b>Applicant(s)</b> MARUGAN ET AL.	
	<b>Examiner</b> Marc S. Zimmer	<b>Art Unit</b> 1712	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to ~~communication(s) filed on~~ the board dismissal.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 72-132 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 72-80,83-88,91-107,110-124 and 127-132 is/are rejected.
- 7) ☒ Claim(s) 81, 82, 89, 90, 108, 109, 125, and 126 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

Art Unit: 1712

The Board of Patent Appeals has dismissed the appeal with the analysis that follows:

This application was received electronically at the Board of Patent Appeals and Interferences on August 22, 2007. A review of the application has revealed that the application is not ready for docketing as an appeal. Accordingly, the application is herewith being electronically returned to the examiner. The matters requiring attention prior to docketing are identified below:

An examination of the Image File Wrapper (IFW) reveals that a Notice of Appeal and Amendment were filed on April 4, 2006. The Notice of Appeal was deemed to be unacceptable pursuant to an Office communication mailed on April 18, 2006. A new Notice of Appeal was filed on April 25, 2006. An Appeal Brief was filed on June 26, 2006.

The Amendment filed April 4, 2006 cancelled claims 1-71 and added new claims 72-132. According to § 1206 of the Manual of Patent Examining Procedure (MPEP) (Eighth Edition, Rev. 3, August 2005): "Entry of a new amendment in an application on appeal is not a matter of right." This Amendment does not appear to have been considered.

Section 41.31 of the Code of Federal Regulations (CFR)(2005) states:

(a) *Who may appeal and how to file an appeal.* (1) Every applicant, any of whose claims has been twice rejected, may appeal from the decision of the examiner to the Board by filing a notice of appeal accompanied by the fee set forth in § 41.20(b)(1) within the time period provided under § 1.134 of this title for reply.

Since the initial Appeal Brief<sup>1</sup> filed June 26, 2006 and the Examiner's Answer mailed September 26, 2006 were written on claims which were not twice rejected, this appeal is not ripe for consideration and decision. Hence, the appeal is DISMISSED.

The Examiner confesses to be somewhat confused by the Board's decision insofar as the record seems to be clear that the scope of the subject matter being claimed is no different in claims 72-132 than it was in previously examined versions of the claims that had received a patentability determination. The Examiner, admittedly, was unaware that the entry of Applicant's April 4, 2006 amendment could have been refused, insofar as the amendment was received after a non-final rejection. In any case, the Examiner would likely not have been inclined to refuse entry given that the issues under consideration had not changed.

This prosecution is hereby re-opened with the case being in non-finally rejected status as of March 1, 2006.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 72-78, 80, 83-88, 91-97, 100, 102-107, and 110-112, 114-116, 118-124, and 127-130, and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al., (U.S. 5,451,632).

Okumura discloses the preparation of a polycarbonate-polysiloxane copolymer and its combination with one or more of several materials to form a composition including an admixture of said copolymer and polycarbonate homopolymer, an admixture of said copolymer and a high impact styrenic resin (column 13), an admixture of said copolymer and a fluororesin, an admixture of said copolymer and a pigment, etc. (column 9, lines 5-10). For instance, columns 9 and 10 teach a blend of the copolymer and polycarbonate homopolymer wherein 0.1 to 99.9 wt.% of the former are added to 99.9 to 0.1% of the latter. Column 12, lines 40-68 through column 13, lines 1-6 disclose mixtures of the copolymer and a pigment of which titanium dioxide is preferred, wherein the pigment comprises preferably between 0.1 and 10% by weight of the total.

Relevant to the present discussion, the disclosure (column 15, lines 40-44) also provides for mixtures of the copolymer and any of the other embodiments of component

Art Unit: 1712

(B) set forth therein (where component (B) is the materials delineated *supra*). Also germane to the Examiner's assertion of unpatentability, the reference repeatedly emphasizes the importance of having a specified content of the polydiorganosiloxane as a weight percentage of the entire composition. For instance, where the copolymer is combined with polycarbonate homopolymer, column 10, lines 44-56 state that the siloxane portion should comprise between 0.02 to 8 percent by weight of the total. See also column 12, lines 36-39 and column 14, lines 53-57 where minimum amounts are prescribed for each of the different combinations of copolymer and component (B).

Concerning Applicant's stipulation that the siloxane content should be at least 3% by weight, column 10, lines 49-56 state that mechanical properties and flame resistance are compromised when one deviates from this quantity as a percentage of the composition which, in one embodiment suggested by the reference, may comprise all of the materials outlined in the claims.

Concerning independent claim 102, the first thickness recited therein is arbitrary and can be any thickness whatsoever. Table 2C summarizes the physical attributes of sheets of 1/16" (approximately 1.6 mm) and 1/32" thickness that are made from compositions exemplary of the invention. Most of these demonstrate a flame resistance of V-0 hence the article of claim 102 is rendered obvious for any first thickness below 1/16".

The reference provides for an embodiment wherein the pigment is treated with a silicone oil for the purpose of enhancing dispersibility (column 12, lines 57-59). Accordingly, claims 86-87 and 105-106 are, likewise, rejected.

As an aside, the Examiner remarked in his appeal brief that claims 119-132 were, "directed to allowable subject matter and [were] not to be reviewed upon appeal." This ostensibly was based on the rationale set out in the Examiner's October 5, 2005 correspondence. It is noted, however, that the reference never actually expressly states that treatment of the pigment is accomplished *in situ*. Rather, column 12, lines 57-59 say only that silicone oils "may be used" to enhance dispersion, there being no indication as to whether the oil and pigment are combined prior to adding the pigment to the polycarbonate-polysiloxane copolymer. Further, even if it were only appropriate to infer from that passage that treatment is performed *in situ*, a notion that the Examiner is not in agreement with, the courts have ruled that changing the sequence of steps of a process (in this case, to treat the pigment with a silicone oil prior to its addition to the polysiloxane polycarbonate copolymer instead of after pigment and copolymer have been combined) is obvious in the absence of any evidence that the product is somehow changed by the change in sequence of steps. Accordingly, claim 119 and various claims dependent therefrom are not allowable over the prior art.

Concerning the claims directed to the introduction of an impact modifier, it is now recognized that a separate motivation to add this component was not necessary inasmuch as (i) the reference already contemplates combinations of the polysiloxane-polycarbonate copolymer with more than one embodiment of component (B), and one permutation of (B) is high impact styrene of which SBS rubber is exemplary.

As for claim 78, the incorporation of fibril-forming tetrafluoroethylene is contemplated in column 14, lines 58-68 through column 15, lines 1-28.

As for claims 80, 83-85, 88, 91-93, 107, 110-112, 124, and 127-129, auxillary flame retardants such as alkali metal salts of perfluorinated sulfonic acids and including potassium salt of perfluorobutanesulfonic acid are mentioned in column 16, lines 23-55.

Claims 79, 101, and 131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al., (U.S. 5,451,632) as applied to claims 72-78, 80, 83-88, 91-93, 100-107, and 110-112, 114-116, 118-124, and 127-129, and 132 above, and further in view of Lo et al., (5,804,654) and/or Falcone et al., (U.S. Patent Application Publication No. 2002/0019466).

Okamura mentions the incorporation of fibril-forming PTFE, a known antidrip agent, in columns 14 and 15 but is silent regarding the incorporation of PTFE encapsulated in styrene-acrylonitrile copolymer.

There are documents numbering in the hundreds that contemplate using polytetrafluorethylene (PTFE) as an anti-drip agent. However, it is documented in Lo et al. and elsewhere that PTFE aggregates when blended into polycarbonate matrices thereby having a deleterious effect on the mechanical properties of the polymer. (The aggregates are actually referred to in Lo as "networks" in column 1, line 24.) To address this matter, Lo teaches the preparation of styrene-acrylonitrile-encapsulated PTFE (column 4, lines 20-22) that acquires the form of a free flowing polymer that, when blended into a thermoplastic, does not adversely affect the mechanical properties and, further, even provides an enhancement in flame-resistance (column 1, lines 32-

Art Unit: 1712

39). Falcone (Example 1) indicates that the incorporation of these copolymers as anti-dip agents is now conventional. Accordingly, this aspect of the invention is obvious.

Claims 94-96, 98-99, 113-115, and 117-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al., (U.S. 5,451,632) as applied to claims 72-78, 80, 83-88, 91-93, 100-107, and 110-112, 114-116, 118-124, and 127-129, and 132 above in view of Brand, (U.S. 4,357,170) and/or Nelson et al., (U.S. 3,542,575).

In column 12, line 58, Okamura contemplates using polyol as a dispersing aid for titanium oxide but does not volunteer any examples of the polyol. Nevertheless, it is well-established that trimethylolpropane is exemplary of the polyols employed for this purpose as is illustrated by its mention in Brand (claim 11), Nelson (column 4, lines 29-34), and others.

### ***Response to Applicant's Supplemental Brief***

At the outset, the Examiner advises Applicant that their Specification, by itself, does not fully illustrate that a lowered degree of flame retardance in a composition containing all of a polycarbonate, polycarbonate, polysiloxane copolymer, and  $\text{TiO}_2$  is unexpected because the tables are devoid of any mention of the flame retardance of a composition containing the polycarbonate-polysiloxane copolymer and  $\text{TiO}_2$  to the exclusion of polycarbonate homopolymer. On the other hand, it is acknowledged that Okamura seems to verify that a composition containing only those two elements gives a V-0 rating and, thus, the Examiner agrees that it is unexpected that a composition



containing all three would not exhibit comparable flame retardance, a fact that is corroborated by Applicant's Table 3.

Ultimately, even if Applicant and the Examiner can agree that a worsening of the flame retardance when all three of the aforementioned materials are combined is indeed unexpected in light of the teachings of Okamura, Applicant's solution to this problem, i.e. maintaining a specified minimum amount of siloxane content as contributed by the polycarbonate-polysiloxane, is anticipated by the reference. Column 10, lines 40-55 clearly state that several properties are deleterious affected when one deviates from the prescribed polysiloxane content, which is 0.01 to 10 wt. percent and inclusive of 3 wt. percent. The Examiner believes that this observation holds true no matter what embodiment(s) of component (B) are combined with the copolymer. The reason why the Examiner felt it most appropriate to reject the claims under 35 U.S.C. 103, as opposed to 35 U.S.C. 102, was because a combination of the polysiloxane-polycarbonate, polycarbonate, and titanium dioxide had not been expressly disclosed, not because the siloxane content limitation had not been mentioned. The Examiner did believe, however, that a composition containing each of these materials was readily envisaged and, therefore, obvious given the statements made at column 15, lines 40-44 of Okamura and elsewhere in that disclosure.

As for Applicant's article claims, it is first noted that the Examiner had labeled the claimed first thickness as arbitrary because Applicant had not defined said thickness in specific numerical terms and, hence, the first thickness could be of any dimension from a few micrometers to a few inches or more. Concerning Applicant's V-0 limitation, this

Art Unit: 1712

limitation is inherently satisfied since the reference suggests an equivalent composition and the first thickness is undefined. That is to say, although a composition containing the claimed components and wherein the siloxane content is 3 wt.% will not necessarily provide a V-0 rating at one first thickness, there is surely another first thickness embraced by the claims at which this rating is met. On the other hand, because claim 104 defines a specific first thickness, the V-0 rating limitation cannot be said to be inherently satisfied. (See Applicant's rebuttal of the Examiner's remarks concerning trial 18 of the Specification on page 4 of their November 20, 2006 brief.) Nevertheless, the reference indicates that flame retardance is impacted by the presence/absence of polysiloxane content (column 10, lines 40-55) and the skilled artisan would certainly aspire to achieve a V-0 rating where possible. Accordingly, one of ordinary skill would vary either (i) the amount of polysiloxane content in the copolymer or (ii) the amount of the copolymer itself added to the composition, or both, as a matter of routine experimentation to identify that quantity of the copolymer that is necessary to obtain an article with a V-0 rating at 1.6 mm thickness.

The Examiner has some concerns with the data offered in Applicant's Specification. Most of these were originally brought up in the Examiner's October 5, 2005 correspondence but were left unanswered when Applicant took what the Examiner had deemed at the time as being a patentable distinction, the limitations of original claim 8, and placed it into claim 1. These concerns are re-stated herein:

***Allowable Subject Matter***

Claims 81, 82, 89, 90, 108, 109, 125, and 126 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Marc S. Zimmer*